It will thus be seen that the epiphysis derives its blood from all the branches.

Further, the same author has shown that this distribution can be demonstrated up to the period of complete bony development, when it is noted that the vessels of the shaft become relatively smaller than those entering the extremities; while the joint vessels become distinctly enlarged. He believes that these changes account for the relative frequency of epiphyseal infection in children and of joint infection in adults. He also believes that the situation of inflammatory foci in the bone is dependent entirely on the size of the embolus. When large it becomes arrested near the entrance of the nutrient artery, while the finer emboli are able to proceed to the terminal branches near the epiphysis.

This relation of infective localization to particular arterial branches, has been demonstrated both experimentally and clinically; for instance, in the head of the femur the primary focus of tuberculous disease is situated at the insertion of the ligamentum teres, or at a point just above or just below; and these three places correspond accurately to the entrance of epiphyseal arteries, as shown by Lexer's method of injecting the arteries of the bone.

Tuberculous and infective osteomyelitis are comparatively common in the shaft of short pipe bones, such as the phalanges; whereas it is relatively rare in the long bones. Lexer explains this apparent inconsistency by demonstrating that the diaphyseal arteries in such short bones are distinctly larger than the epiphyseal vessels; whereas in the long bones the opposite condition obtains. Whether the alterations in the relative size of the blood-vessels at the period of complete bony development is the cause or not, clinical experience teaches us that primary osteomyelitis is rare after that period, the majority of cases occurring in adult life being recurrent attacks.

When an infective process originates at or near the epiphyseal end of the shaft, its usual situation, it spreads rapidly along the marrow, producing areas of necrosis and cellular infiltrations, which rapidly degenerate into pus. The blood supply within the unyielding bone is quickly arrested and the endosteal layer of compact bone ceases to be nourished. Through the intercommunicating bone-cells and Haversian system the infective agent may reach the inner surface of the periosteum, which soon becomes separated from the cortical surface, cutting off the blood supply to the outer layer of the shaft. According to the virulence of the infection, the resisting power of the patient, as well as the stage of bone development, the results will vary. There